

READ SENSOR WITH CONFINED SENSE CURRENT**ABSTRACT OF THE DISCLOSURE**

A magnetoresistive (MR) sensor having a decreased electrical profile due to a confining of the device sense current within a conductive nanoconstriction. The MR sensor includes a giant magnetoresistive (GMR) stack and a layer of high resistivity material within the GMR stack. The layer of high resistivity material includes a nanoconstriction precursor. When a punch current is applied at the nanoconstriction precursor, a conductive nanoconstriction is formed through the layer of high resistivity material at the nanoconstriction precursor.